



Patent
Attorney's Docket No. 01-4030

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2830

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of) Mail Stop: Appeal Brief-Patents
Paul James REMINGTON et al.)) Group Art Unit: 2834
Application No.: 10/060,698)) Examiner: I. Mohandes
Filed: January 30, 2002))
For: COMPLIANT STATOR))

TRANSMITTAL FOR APPEAL BRIEF

U.S. Patent and Trademark Office
2011 South Clark Place
Customer Window, Mail Stop Appeal Brief - Patents
Crystal Plaza Two, Lobby, Room 1B03
Arlington, Virginia 22202

Sir:

Transmitted herewith in triplicate is an Appeal Brief in support of the Notice of Appeal
filed February 27, 2004.

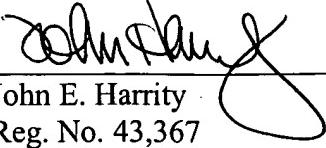
Enclosed is a check for \$165.00 \$330.00 to cover the Government fee.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R.
§§ 1.16, 1.17, 1.20(d) and 1.21 that may be required by this paper, and to credit any
overpayment, to Deposit Account No. 50-1070. This paper is submitted in triplicate.

Respectfully submitted,

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PATENT
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of) Mail Stop: APPEAL BRIEF - PATENTS
Paul J. REMINGTON et al.)
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For: COMPLIANT STATOR) Examiner: I. Mohandes

APPEAL BRIEF

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Arlington, VA 22202

Sir:

This Appeal Brief is submitted in triplicate in response to the final Office Action mailed October 3, 2003 and in support of the Notice of Appeal, filed February 27, 2004.

I. **REAL PARTY IN INTEREST**

The real party in interest in this appeal is BBN Technologies.

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II. RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals and interferences.

III. STATUS OF CLAIMS

Claims 1-7 and 10 are pending in this application. All of these claims have been finally rejected and are the subject of the present appeal.

IV. STATUS OF AMENDMENTS

A Request for Reconsideration was filed December 2, 2003. An Advisory Action, dated January 29, 2004, indicated that the Request for Reconsideration was considered, but did not place the application in condition for allowance.

V. SUMMARY OF THE INVENTION

Systems and methods consistent with the principles of the invention provide a compliant connection between the stator of an electric motor and the motor case. An exemplary configuration of an electric motor in an implementation consistent with the principles of the invention is illustrated in Figs. 2A and 2B.

As illustrated, a compliant stator motor 200 includes a rotor 210, a stator/motor case 220, an outer case 230, and isolation mounts (or isolators) 240. The rotor 210, stator/motor case 220,

outer case 230, and isolators 240 are mounted in a pedestal 250 that is hard mounted to foundation 260 (pg. 4, para. 17).

Outer case 230 provides a mounting location for resilient isolators 240 that support stator/motor case 220 and reacts the torque applied by stator 220 to rotor 210 (pg. 4, para. 18). Outer case 230 rigidly attaches to pedestal 250 (pg. 4, para. 18).

Inner motor case 220 supports the stator and connects to outer case 230 by a number of resilient isolators 240 (pg. 5, para. 19). In an implementation consistent with the principles of the invention, isolators 240 may be formed of an elastomeric (i.e., rubber-like) material (pg. 5, para. 19). Isolators 240 may be oriented to be in shear for radial and axial motor case deflections (presumably high compliance) and in compression for rotation about the motor axis (better able to carry the high torque loads) (pg. 5, para. 19). Isolators 240 may be symmetrically located about the axis of the motor, so that when isolators 240 deflect under the torque load, the axis of stator/motor case 220 does not move out of alignment with rotor 210 (pg. 5, para. 19).

Fig. 3 illustrates a configuration of a compliant stator motor 300 in an alternative implementation consistent with the principles of the invention. As illustrated, compliant stator motor 300 includes a rotor 310, a stator 320, and vibration isolation mounts (or isolators) 330. Rotor 310 may include any type of rotor, such as those used in permanent magnet electric motors (pg. 6, para. 23). Stator 320 may include main and auxiliary windings (not shown) (pg. 6, para. 23). In this configuration, stator 320 is mounted in linear bearings in a known manner (pg. 6, para. 23). The linear bearings constrain the motion of stator 320 in the radial and tangential

(torque) directions, while allowing stator 320 to move in the axial direction (pg. 6, para. 23).

Vibration isolators 330 provide isolation in the axial direction (pg. 6, para. 24).

VI. ISSUE

Whether claims 1-7 and 10 are anticipated under 35 U.S.C. § 102(b) by Spreen (U.S. Patent No. 1,688,891).

VII. GROUPING OF CLAIMS

Appellants are satisfied to let claims 1, 2, 5, and 10 stand or fall together and claims 6 and 7 stand or fall together. Each of claims 3, 4, and 6 stand or fall alone. The patentability of each of these different groups of claims is argued separately in the Arguments section below.

VIII. ARGUMENTS

The rejection of claims 1-7 and 10 under 35 U.S.C. § 102(b) as anticipated by Spreen (U.S. Patent No. 1,688,891) should be REVERSED.

Claims 1-7 and 10 stand finally rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Spreen. Appellants choose claim 1 as representative of the group including claims 1, 2, 5, and 10. Appellants also choose claim 6 as representative of the group including claims 6 and 7.

Spreen is directed to an electric motor 11 that includes a rotor 12 rotatably mounted in end plates 13, a stator 14 carrying stator windings 15, a frame 16, and an annular soft rubber member 17 disposed between the outer surfaces of stator 14 and the inner surface of frame 16

(Fig. 1; col. 1, lines 19-36). Spreen discloses that annular soft rubber member 17 acts to insulate stator 14 from motor frame 16 and absorb the vibration of the motor thereby eliminating the noise resulting from the vibration (col. 1, lines 37-45).

The initial burden of establishing a *prima facie* basis to deny patentability to a claimed invention always rests upon the Examiner. In re Oetiker, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987).

With these principles in mind, Appellants' claim 1 recites an electromechanical machine that includes a rotor, a stator, an outer motor case, and a plurality of compliant mounts. The stator is located external to the rotor and includes main and auxiliary windings. The plurality of compliant mounts is positioned between the stator and outer motor case and is configured to enhance forces applied to a foundation due to excitation of the auxiliary windings. Spreen does not disclose or suggest this combination of features.

For example, Spreen does not disclose a stator that includes main and auxiliary windings. The Examiner relies on element 15 in Fig. 1 of Spreen for allegedly disclosing the main and auxiliary windings (final Office Action, pg. 2). Appellants submit that this element in Spreen does not disclose or suggest main and auxiliary windings.

Element 15 in Fig. 1 of Spreen corresponds to stator windings (col. 1, line 22). Contrary

to the Examiner's allegation, Spreen does not disclose or suggest that stator windings 15 include main and auxiliary windings, as required by claim 1.

Spreen does not further disclose a plurality of compliant mounts positioned between the stator and the outer motor case and configured to enhance forces applied to a foundation due to excitation of the auxiliary windings, as also required by claim 1. The Examiner relies on element 17 (Fig. 1) and col. 1, line 23 of Spreen for allegedly disclosing this feature (final Office Action, pg. 2, and Advisory Action, pg. 2). Applicants submit that these sections of Spreen do not disclose or suggest the recited feature.

Spreen's element 17 corresponds to a soft rubber member (col. 1, line 17). Spreen specifically discloses that rubber member 17 is annular (i.e., in the shape of a ring). Fig. 2 of Spreen depicts annular soft rubber member 17 as a single piece of rubber. Appellants' claim 1, however, recites a plurality of compliant mounts. Spreen's single annular soft rubber member 17 cannot be reasonably alleged to be a plurality of compliant mounts.

Moreover, Spreen does not disclose or suggest that the single, annular soft rubber member 17 is configured to enhance forces applied to a foundation due to excitation of the auxiliary windings, as also required by claim 1. With respect to this feature, the Examiner alleges that "the isolating rubber being configured to deflect torque (such as anti vibration column 1,line 5)" (final Office Action, pg. 3). Appellants submit that the Examiner has mischaracterized the language of Appellants' claim 1.

Appellants' claim 1 recites a plurality of compliant mounts positioned between the stator

and outer motor case and configured to enhance forces applied to a foundation due to excitation of the auxiliary windings. Contrary to the Examiner's allegation, one skilled in the art will readily appreciate that enhancing forces applied to a foundation due to excitation of the auxiliary windings is quite different from deflecting torque. Moreover, since Spreen does not disclose or suggest that stator windings 15 include auxiliary windings, Spreen cannot disclose or suggest a plurality of compliant mounts positioned between the stator and outer motor case and configured to enhance forces applied to a foundation due to excitation of the auxiliary windings, as required by claim 1.

Further with respect to this feature, the Examiner alleges that "the member 17 not only reducing the vibration but also transferring Fprces via frame 11 to the base" and points to Fig. 2 of Spreen for support (final Office Action, pg. 3). Appellants disagree.

Spreen does not disclose or suggest that annular soft rubber member 17 transfers forces via frame 11 to the base, as alleged by the Examiner. To the contrary, Spreen specifically discloses that annular soft rubber member 17 absorbs vibration of the motor (col. 1, lines 37-45).

Fig. 2 of Spreen in no way discloses or even suggests that annular soft rubber member 17 enhances forces applied to a foundation due to excitation of the auxiliary windings. Despite requests by Appellants, the Examiner has not specifically pointed out where Spreen discloses that annular soft rubber member 17 enhances forces applied to a foundation due to excitation of the auxiliary windings. Accordingly, the Examiner has not established a *prima facie* basis for denying patentability.

Even assuming, for the sake of argument, that Spreen discloses that annular soft rubber member 17 transfers forces via frame 11 to the base, as alleged by the Examiner, Appellants submit that the Examiner has mischaracterized the language of Appellants' claim 1. Claim 1 recites a plurality of compliant mounts positioned between the stator and outer motor case and configured to enhance forces applied to a foundation due to excitation of the auxiliary windings. One skilled in the art would readily appreciate that enhancing forces applied to a foundation is different from transferring forces via a frame to a base.

Since Spreen does not disclose the combination of features recited in claim 1, the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Spreen is improper.

For at least the foregoing reasons, Appellants respectfully request that the rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Spreen be REVERSED.

Claim 3 recites that the auxiliary windings generate forces, and the outer motor case attaches to the foundation and reacts the forces generated by the auxiliary windings. Claim 3 depends from claim 1 and, therefore, is not anticipated by Spreen for at least the reasons given above with respect to claim 1. Moreover, this claim is not anticipated by Spreen for reasons of its own.

With respect to the features of claim 3, the Examiner alleges "in any electric motor the magnetic field of the stator and rotor inherently generate a rotating motion resulting torque which applies to the foundation to hold the housing of the motor" (final Office Action, pg. 2). This generalization by the Examiner in no way addresses the above features of claim 3.

Since Spreen does not disclose or suggest auxiliary windings, Spreen cannot disclose the features of claim 3. The Examiner did not point to any section of Spreen that discloses that stator windings 15 include auxiliary windings or that the outer motor case, which the Examiner alleges corresponds to frame 16 (see final Office Action, pg. 2), attaches to a foundation. Accordingly, the Examiner has not established a *prima facie* basis for denying patentability with respect to claim 3.

For at least the foregoing reasons, Appellants respectfully request that the rejection of claim 3 under 35 U.S.C. § 102(b) as anticipated by Spreen be REVERSED.

Claim 4 recites that the compliant mounts are symmetrically positioned about an axis of the motor. Claim 4 depends from claim 1 and, therefore, is not anticipated by Spreen for at least the reasons given above with respect to claim 1. Moreover, this claim is not anticipated by Spreen for reasons of its own.

The Examiner relies on element 17 in Fig. 12 of Spreen for allegedly disclosing the feature of claim 4 (final Office Action, pg. 2). Since Spreen does not include a Fig. 12, Appellants assume that the Examiner intended to point to Fig. 2 of Spreen that depicts annular soft rubber member 17 positioned between stator 14 and frame 16. Appellants submit that Fig. 2 of Spreen does not support the Examiner's allegation.

Claim 1, from which claim 4 depends, recites a plurality of compliant mounts. Claim 4 recites that the compliant mounts are symmetrically positioned about an axis of the motor. Spreen specifically discloses that rubber member 17 is annular (i.e., in the shape of a ring). Fig.

2 of Spreen depicts annular soft rubber member 17 as a single piece of rubber. Appellants' claims 1 and 4, however, recite a plurality of compliant mounts. Spreen's single annular soft rubber member 17 cannot be reasonably alleged to be a plurality of symmetrically positioned compliant mounts.

The Examiner has not addressed this argument. Accordingly, a *prima facie* basis for denying patentability has not been established with respect to claim 4.

For at least the foregoing reasons, Appellants respectfully request that the rejection of claim 4 under 35 U.S.C. § 102(b) as anticipated by Spreen be REVERSED.

Claim 6 recites an electromechanical machine. The electromechanical machine includes a rotor; a stator located external to the rotor and including main and auxiliary windings; linear bearings configured to constrain a motion of the stator to an axial direction; and a plurality of compliant mounts connected to the stator and configured to enhance axial forces applied to a foundation due to excitation of the auxiliary windings. Spreen does not disclose or suggest this combination of features.

For example, Spreen does not disclose or suggest linear bearings configured to constrain a motion of the stator to an axial direction. The Examiner did not address this feature. Accordingly, a *prima facie* basis for denying patentability has not been established with respect to claim 6.

Claim 6 further recites a plurality of compliant mounts connected to the stator and configured to enhance axial forces applied to a foundation due to excitation of the auxiliary

windings. The Examiner appears to rely on element 17 of Spreen as allegedly corresponding to this feature of claim 6 (final Office Action, pp. 2-3). Appellants submit that element 17 of Spreen does not correspond to the recited plurality of compliant mounts.

As set forth above, element 17 of Spreen corresponds to a soft rubber member (col. 1, line 17). Spreen specifically discloses that rubber member 17 is annular (i.e., in the shape of a ring). Fig. 2 of Spreen depicts annular soft rubber member 17 as a single piece of rubber. Appellants' claim 6, however, recites a plurality of compliant mounts. Spreen's single annular soft rubber member 17 cannot be reasonably alleged to be a plurality of compliant mounts.

For at least the foregoing reasons, Appellants respectfully request that the rejection of claim 6 under 35 U.S.C. § 102(b) as anticipated by Spreen be REVERSED.

IX. CONCLUSION

In view of the foregoing arguments, Appellants respectfully solicit the Honorable Board to reverse the outstanding rejections of claims 1-7 and 10.

Appeal Brief

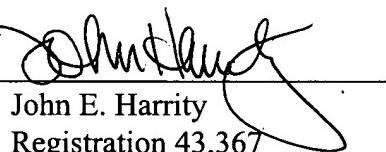
Application No. 10/060,698
Attorney Docket No. 01-4030

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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By:



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Date: April 23, 2004

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APPENDIX

1. A motor comprising:
 - a rotor;
 - a stator located external to the rotor and including main and auxiliary windings;
 - an outer motor case; and
 - a plurality of compliant mounts positioned between the stator and outer motor case and configured to enhance forces applied to a foundation due to excitation of the auxiliary windings.
2. The motor of claim 1 wherein the compliant mounts are of an elastomeric material.
3. The motor of claim 1 wherein the auxiliary windings generate forces, and wherein the outer motor case attaches to a foundation and reacts the forces generated by the auxiliary windings.
4. The motor of claim 1 wherein the compliant mounts are symmetrically positioned about an axis of the motor.
5. The motor of claim 1 wherein the compliant mounts are positioned to be in shear

for radial and axial deflections and in compression for rotation about an axis of the motor.

6. An electromechanical machine comprising:

a rotor;

a stator located external to the rotor and including main and auxiliary windings;

linear bearings configured to constrain a motion of the stator to an axial direction;

and

a plurality of compliant mounts connected to the stator and configured to enhance axial forces applied to a foundation due to excitation of the auxiliary windings.

7. The electromechanical machine of claim 6 wherein the compliant mounts are formed of an elastomeric material.

10. A method for implementing a motor including a rotor and a stator, comprising:

providing an outer motor case, the outer case reacting torque applied by the stator to the rotor; and

providing a plurality of compliant mounts between the stator and the outer motor case, the compliant mounts being configured to react torque.